<b>Work Ord</b> September-05-1	er ID 124024 4 2:25:34 PM		*124				Page 1			
Item ID: Revision ID:	D3490-3		Accept	*N900	040	100	)*	Setup Sta	17	S1*
Item Name: Start Date: Required Date: Reference:	Cross Bolt Spacer  9/05/14	1 11 7		Cust Item l Customer:	ID:			St	<sup>op</sup> <b>*</b> N	S2*
Approvals:	Process Plan:MUJ	Date:14-09-05	Tooling:	D:	ate:	_	1	Run Sta	~1 <i>\</i> 1	R1*
	QC:	Date:	<b>SPC</b> (Y/N):	Da	ate:			Sto	<sup>₀p</sup> *N	R2*#
Sequence ID/ Work Center II	Operation Description		Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
Draw Nbr	Revision Nbr			7.40		<u></u>				
D3490	Rev A									
00 <b>*1                                    </b>	Hardinge CNC LATHI	E SMALL	0.00				81	<b>ø</b>		949 14.09.06
Hardinge CNC Lathe	FOLIO RE DWG REV	AS PER FOLIO FA629 & DW EV: <b>AA</b> 7: <b>A</b> R AS REQUIRED	0.00 G D3490				·			•
10	QC2- Inspect parts off	machine FAI/FAIB	0.00				<b>a</b> 1	ı		DAS 37
*110* QC Quality Control	Memo		0.00				81	<u>ø</u>		9-89 14-69.00
<sup>20</sup>	QC8- Inspect parts - sec	cond check	0.00				81	Ø		DAS 40
QC quality Control	Memo		0.00					7		14/09/08

DQA:			. Date:										<b>DART</b>	
QA Closed:			Date:			WORK ORDER NON-	ORK ORDER NON-CONFORMANCE / UPDATE  Work Order update only							
						DISPOSITION	DISPOSITION AGAINST DEPARTMENT/PROCESS							
Work Orde	er: _						. 1			Current lead	1	Water Jet	Engineering	
						Rework			Skid-tube Machining	Crosstube Small Fab	Pro	d. Eng. Coor.	Quality	
Part N	10					Scrap Use-as-is			noforming	Finishing	4	e/Packaging	Other	
NCR N	ما					Suspected Unapproved			Large Fab	Composite	1100/3101	Supplier	┪	
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Equip/Tooling														
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Landi						General	FA	OLI CA	ILGONI		<u>-</u>			
Landi	LIE C	Bending			Г	Bend		Teolio/F	rogram		Outside Dim	ensions	Pressure/Forced	
		Centre N	ot Conce	ntric		BOM/Route	$\vdash$	Grain	108.4		Over/Under	<b>⊢</b>	Set-up	
		Cracks	or conce	110130		Broken/Damage/Defect		Hardwa	ire		Part Incorre	<del> </del>	Temperature/Cure	
	$\vdash$	Crimp/Ki	nk/Rinnle	-/Wave		Burrs		-	ion incomplete/U	ngualified	Part Lost/M	issing	Weld	
	┢	Cuffs	my mppic	.,a.c		Contamination		-1	tions Incomplete/		Part Moved		Wrong Stock Pulled	
		Crushing				Countersink	$\vdash$	-	ned/off center		Positioned V	Wrong		
wij.	Г	Heat Tre			-	Cut Too Short		Mislab			Power Loss/	'Surge	Other	
	$\vdash$	Inspectio		Tube		Drawing		Misrea	d	<u> </u>				
		Marks/Cl				Drill Holes		Off-set						
		Turning S		<b>:</b>		Finish		Out of	Calibration					
	Г	Wave/Tv	vist in Tul	be		Fit/Function		Out of	Sequence					

Work Ord September-05-1				*124				Page 2				
Item ID: Revision ID: Item Name: Start Date: Required Date: Reference:	D3490-3  Cross Bolt 9/05/14 9/05/14	Spacer Start Qty: 80.00 Req'd Qty: 80.00	*80* *80*	Accept	*N900  Cust Item II  Customer:		100	<b>n</b> *	Setup	Start Stop		S1* S2*
Approvals:	Process I	Plan:	Date:	Tooling: SPC (Y/N):	Da				Run	Start Stop	*N	R1* R2*
Sequence ID/ Work Center II  124  *1 24* HandFinish Hand Finishing		Operation Description  Memo CLEAN CRO	OSSBOLT SPACER WITH	Set Up/ Run Hours 0.00 0.00 ALUMINUM CLEANNE	Tool ID	Tool#	Plan Code	Accep Qty	t Rej Qty		Reject Number	Insp. Stamp
126 *126* QC Quality Control		QC5- Inspect part complet	teness to step on W/O	0.00				I		//	4-9	28
130 <b>*130*</b> Packaging		Identify as per dwg & Stoc	k Location:	0.00				81		Bi	£14-0	)9-0B

0.00

\*\*\*STOCK IN SKIDTUBE CELL\*\*\*

Packaging

DQA:			Date:						<u>.</u>					
OA Clasadi			Date:			WORK ORDER NON-CONFORMANCE / UPDATE  Work Order update only								AEROSPACE
QA Closed:	-		Date.				_			······································				
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Part N	۱o.					Scrap			Machining	Small Fab		Prod	d. Eng. Coor.	Quality
	•					Use-as-is		Thern	noforming	Finishing		Rec/Stor	e/Packaging	Other
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		Crimp/Kii	nk/Ripple	:/Wave		Burrs	_	-1 '	ion Incomplete/U			art Lost/Mi	ssing	Weld
	_	Cuffs			<u> </u>	Contamination	$\vdash$	4	tions Incomplete/	Unclear	-	art Moved	L Vrong	Wrong Stock Pulled
	_	Crushing			<u> </u>	Countersink		-	gned/off center		$\vdash$	ositioned V ower Loss/		Other
		Heat Trea				Cut Too Short	-	Mislab			۲	ower Loss/	onige [	Joulei
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	-	Turning S Wave/Tw			-	Finish Fit/Function	$\vdash$	-{	Sequence		_			
l	1	[vvave/IN	vist III TUI	75		prigranction	_L	Journ	Jequente					· · · · · · · · · · · · · · · · · · ·

Work Ord September-05-1		· -		*124	7			Page	3				
Item ID: Revision ID: Item Name:	D3490-3 Cross Bolt S	pacer		Accept	*N900	040	100	<b>/</b> *	Setup	Start Stop	17	S1* S2*	
Start Date: Required Date: Reference:	9/05/14 : 9/05/14	Start Qty: 80.00 Req'd Qty: 80.00	*8( *8(	· <del>-</del>	Cust Item :	ID:					IV		
Approvals:	Process Pl QC:	lan:	Date:	Tooling: SPC (Y/N):		ate:	· .		Run	Start Stop		R1* R2*	
Sequence ID/ Work Center II	D	Operation Description QC21- Final Inspection -	Work Order Release	Set Up/ Run Hours	Tool ID	Tool#	Plan Code	Accep: Qty	t Reje Qty		Reject Number	Insp. Stamp	
*140*		Memo		0.00			_	M	<u> </u>	14	109	-09	

0.00

Memo

**Quality Control** 

MLJ 1409-09 MK 14-9-08

DQA:			Date:										"DART
						WORK ORDER NON-	-CC	ONFO	RMANCE / UF		ork Order up	data only	AEROSPACE
QA Closed:			Date:							VV	ork Order up	date only	
Work Ord	er.				:	DISPOSITION				AGAINST DE	PARTMENT/	PROCESS	
Work Ord	٠					Rework			Skid-tube	Crosstube	1	Water Jet	Engineering
Part I	No.					Scrap			Machining	Small Fab	Proc	d. Eng. Coor.	Quality
	•				_	Use-as-is		Thern	noforming	Finishing	Rec/Stor	e/Packaging	Other
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		Bending				Bend		Folio/l	Program	L	Outside Dim	ensions	Pressure/Forced
		Centre N	ot Conce	ntric		BOM/Route		Grain			Over/Under	<u> </u>	Set-up
		Cracks				Broken/Damage/Defect		Hardwa	are		Part Incorre	<del> </del>	Temperature/Cure
		Crimp/Ki	nk/Ripple	e/Wave		Burrs		4 '	ion Incomplete/Ur		Part Lost/Mi	ssing	Weld
ĺ		Cuffs				Contamination		4	tions Incomplete/U	Jnclear	Part Moved		Wrong Stock Pulled
Į		Crushing				Countersink		-	gned/off center	<u> </u>	Positioned V		<b>~</b> 7
		Heat Trea	at			Cut Too Short	L	Mislab			Power Loss/	Surge	Other
		Inspectio		Tube		Drawing		Misrea					<del></del>
1		Marks/Cl				Drill Holes		Off-set		•			
		Turning S				Finish	<u>_</u>	_	Calibration				
	1	Wave/Tw	vist in Tul	be	-	Fit/Function	L	Out of	Sequence				

Page 1

Work Order ID: 124024

\*124024\*

Parent Item:

D3490-3

\*D3490-3\*

Parent Item Name: Cross Bolt Spacer

**Start Date:** 9/05/14

Required Date: 9/05/14

**Start Qty: 80.00** 

Required Qty: 80.00

Comments:

IPP Rev:A New Issue 06-03-03 JLM

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
M6061T6R0.750		Purchased	No		-	100	f	36.4941	0.266	22		DAS	
*M6061T6	RO 750	*					•	30.4741	**	23		37 9-89	id.na

6061-T6 Round Bar .750"

<b>Location</b>	Loc Qty	Loc Code	
MAT012	36.494052		
m126852	3.494052		
m128573	10		4ft.
m130043	23		19 ft.

DQA:			Date:											
QA Closed:			Date:			WORK ORDER NON-CONFORMANCE / UPDATE  Work Order update only								
QA Closed.			Dutc.						_		PARTMENT/	· · · · · · · · · · · · · · · · · · ·		
Work Orde	er:					DISPOSITION			A					
	-					Rework			Skid-tube Cro	osstube 🔙		Water Jet	Engineering	
Part N	۷o.					Scrap			· · · · · · · · · · · · · · · · · · ·	mall Fab		d. Eng. Coor.	Quality	
						Use-as-is		Thern	~ <del></del>	inishing	Rec/Stor	e/Packaging	Other	
NCR I	۷ο. ـ					Suspected Unapproved			Large Fab Cor	mposite		Supplier	J □	
Root	т		1		Dage	winting of words and an undate		nitial	Action		Sign &			
A. NOOL		Date	Ston	Otre	Desci	ription of work order update or non-conformance	1	initiai iief Eng	Description	n	Date	Verification	QC Inspector	
Cause Design		ryate ryate	Step	Qty	<u> </u>	of non-comormance	CII	ilei Liig	Везеприо		Dute	7 011110411011	- Composition	
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المسطا						General	FA	OLI CA	TEGORY	·				
Landi		Bending				Bend	Г	Teolio/F	Program		Outside Dim	ensions	Pressure/Forced	
	$\vdash$	Centre No	nt Concer	ntric		BOM/Route		Grain	106.4		Over/Under	<del> </del>	Set-up	
	-	Cracks	or concer	iciic		Broken/Damage/Defect	$\vdash$	Hardwa	are		Part Incorred	— — — — — — — — — — — — — — — — — — —	Temperature/Cure	
	Н	Crimp/Kir	nk/Ripple	/Wave		Burrs		-	ion Incomplete/Unquali	ified	Part Lost/Mi	ssing	Weld	
	Н	Cuffs	4 . 512/1-1-	,	-	Contamination	T	<b>⊣</b> '	tions Incomplete/Unclea	<del></del>	Part Moved		Wrong Stock Pulled	
	-	Crushing				Countersink		Misali	gned/off center		Positioned V	Vrong	_	
	-	Heat Trea	at			Cut Too Short		Mislab	eled		Power Loss/	Surge	Other	
		Inspectio	n Strip in	Tube		Drawing		Misrea	d				and the second of the second o	
		Marks/Ch	natter			Drill Holes		Off-set						
		Turning S	equence			Finish		Out of	Calibration					
		Wave/Tw	vist in Tul	эе		Fit/Function		Out of	Sequence					

DART AEROSPACE LTD	Work Order:	124024
Description: Crossbolt Spacer	Part Number:	D3490-3
Inspection Dwg: D3490 Rev: A		Page 1 of 1

	7	First Arti	cle	Prot	otype		
Drawing Dimension	Tolerance	Actual Dimension	Accept	Reject	Method of Inspection		nments
3.085	+0.030/-0.000	3.096	/		DR16	8"VETE	
0.080	+/-0.010	. 076	/		DRIB	8 Ver.	· · · · · · · · · · · · · · · · · · ·
Ø0.591	+0.008/-0.001	.5935			DRIG	8º VER	<u> </u>
0.050 x 45°	+/-0.010 x 0.5°	.048×45°	/		D216	8"VETE	·N.
							1.50
-			· -				
	DAS		DAS				
easured by:	37 9-09	Audited by:	40 9-89		Prototype	Approval:	N/A
Date:	14.09.06	Date:	14/09/0	<b>\</b>		Date:	N/A
ev Date	Change					Revised by	Approve
4 06.10.27	New Issue					KJ/JLM 🚓	

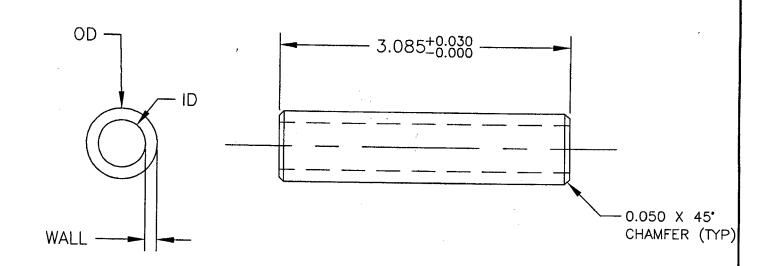
H:\FORMS\Quality	Assurance\approved	QA\FAI revD
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DQA:			Date:		•.								*DART		
QA Closed:			Date:			WORK ORDER NON-	AEROSPACE								
QA Closed. Date.						DISPOSITION AGAINST DEPART									
Work Orde	er: _					DISPOSITION	AGAINST				, ,, , ,		_		
						Rework			<b>—</b>	osstube		Water Jet	Engineering		
Part N	lo.					Scrap			~ <b>—</b>	mall Fab		d. Eng. Coor.	Quality		
· ·						Use-as-is		Therr	~ <del> </del>	inishing	Rec/Sto	re/Packaging Supplier	Other		
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Handling/Pre															
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-	_	Bending				Bend	$\vdash$	-1	Program	-	Over/Under	<u> </u>	Set-up		
	Centre Not Concentric				$\vdash$	BOM/Route	·			<u>⊢</u>			Temperature/Cure		
•	Cracks					Broken/Damage/Defect	Hardwa		<b> </b>		Part Incorre Part Lost/M	<u> </u>	Weld		
	Crimp/Kink/Ripple/Wave					Burrs	<b>—</b>		ion Incomplete/Unqualified		Part Moved		Wrong Stock Pulled		
	Curshing			Countarion			cions Incomplete/Unclear gned/off center		Positioned V	L. Wrong	wrong stock runed				
	Crushing				-	Countersink	-	Mislab		Power Loss/	_	Other			
	Heat Treat					Cut Too Short	-	Misrea		L_	Ti owei ross/	Juige	Totaler		
	Inspection Strip in Tube					Drawing Drill Holes	$\vdash$	Off-set							
	Marks/Chatter Turning Sequence					Finish	$\vdash$	-i	Calibration						
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1	Wave/Twist in Tube					Fit/Function Out of Sequence									

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DESIG	PH	DRAWN BY	DART AEROSPACE PORT HADLOCK,	
CHEC	KED #	APPROVED	D3490	REV. A SHEET 1 OF 1
DATE			TITLE	SCALE
06.0	01.04		CROSS BOLT SPACER	NTS
Α		06.01.04	NEW ISSUE	



## D3490-1/-3/-5 CROSS BOLT SPACER PARTS LIST

PART NUMBER	OD	WALL	ID (REF)	MATERIAL SPEC				
D3490-1	0.500	0.049	0.402	M6061T6T0.500W.049				
D3490-3	0.750	0.080	0.591	M6061T6R0.750				
D3490-5	0.313	0.058	0.197	M6061T6T0.313W.058				

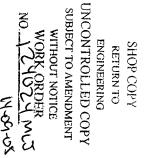
## D3490-1/-3/-5 CROSS BOLT SPACER

MATERIAL:

ALUMINUM 6061-T6 (QQ-A-200/8 OR QQ-A-225/8)

2) ALL DIMENSIONS ARE IN INCHES

TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED





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DQA:			Date:				/ <u>/</u> /	"DART								
QA Closed: Date:						WORK ORDER NON-CONFORMANCE / UPDATE  Work Order update only  Work Order update only										
QA Ciosed. Date.												PARTMENT/PROCESS				
Work Orde	er:					DISPOSITION				AGAIINOI	<i>D</i> L		- FROCESS	_	·	
						Rework			Skid-tube	Crosstube			Water Jet	_ Eng	gineering	
Part N	۱o					Scrap		Machining Small Fab				Prod. Eng. Coor.			Quality	
		*.				· — 1			Thermoforming Finishing				re/Packaging		Other	
NCR N	۱o. <u> </u>					Suspected Unapproved		Large Fab Composite				Supplier				
Root					Desci	ription of work order update		nitial	Act	ion		Sign &	_			
Cause	Cause Date Step Qty			or non-conformance		ief Eng	Description			Date	Verification	C	QC Inspector			
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Bending						Bend		Folio/Program				Outside Dim	ensions	Press	ure/Forced	
	Centre Not Concentric					BOM/Route		Grain				Over/Under	tolerance	Set-u	qı	
	Cracks					Broken/Damage/Defect		Hardwa	ire		L	Part Incorred	ci	Temp	perature/Cure	
	Crimp/Kink/Ripple/Wave					Burrs		Inspect	ion Incomplete/Ur	on Incomplete/Unqualified		Part Lost/Mi	ssing	<b>⊣</b>	Weld	
	Cuffs					Contamination		-1	tions Incomplete/U	Unclear		Part Moved		Wror	ng Stock Pulled	
	Crushing					Countersink		4 `	gned/off center		L	Positioned V				
	Heat Treat					Cut Too Short	lacksquare	Mislab		l _		Power Loss/Surge			r	
	Inspection Strip in Tube					Drawing		Misrea								
	Marks/Chatter					Drill Holes		Off-set								
		Turning S				Finish	$\perp$	-{	Calibration							
<b>l</b> ,	Wave/Twist in Tube					Fit/Function	Out of Sequence									